

1. In a locale with a plurality of probes interconnected to a computing device, a plurality of mobile devices, and means to enter messages to and to retrieve information on said mobile devices, a method of position tracking and communication comprising the steps of:
  - (a) placing said probes at key locations in said locale with non-overlapping coverage areas;
  - (b) modeling said locale with site specific information using a network of probabilities;
  - (c) deploying said mobile units for position tracking and communication;
  - (d) encoding each mobile device with an identifier;
  - (e) sending out beacons by said probes periodically;
  - (f) responding by said mobile units upon receiving said beacon from said probes;
  - (g) gathering the whereabouts of said mobile units to feed to said computing device;
  - (h) calculating the most probable location of said mobile;
  - (i) notifying said mobile with messages; and
  - (j) updating possible change to said site specific information.
2. In a method of position tracking and communication of claim 1, said deploying said mobile units comprising the step of;
  - (a) calculating the desired life span of said mobile units;
  - (b) equipping said mobile units with limited battery power sources corresponding to said desired life span; and
  - (c) attaching said mobile unit to person or object to be tracked.
3. In a method of position tracking and communication of claim 1, said encoding each mobile device with an identifier comprising the step of;
  - (a) calculating the necessary number of mobile units in the locale;
  - (b) separating said identifier into two parts, one common part for uniqueness within said locale and one group part for supplementary use;
  - (c) communicating with said probes with the said common part; and
  - (d) sending said group part of said identifier upon request from said probes.
4. In a method of position tracking and communication of claim 1, said calculating the most probable location of said mobile comprising the step of;

- (a) retrieving the current location of said mobile unit;
  - (b) retrieving the past history of said mobile unit; and
  - (c) mapping said current location and said history of said mobile unit with site specific information.
- 5. In a method of position tracking and communication of claim 1, said notifying said mobile with messages comprising the step of;
  - (a) calculating said most likely location of said mobile unit;
  - (b) calculating the most appropriate messaging device nearby; and
  - (c) sending said message to said messaging device.
- 6. In a method of position tracking and communication of claim 1, said updating possible change to said site specific information comprising the step of;
  - (a) retrieving current location of said mobile unit;
  - (b) calculating for discrepancies with said site specific information;
  - (c) retrieving history data on similar occurrence(s); and
  - (d) alerting system operator of said discrepancies.
- 7. In a locale with a plurality of probes interconnected to a computing device, a plurality of mobile devices, and means to enter messages to and to retrieve information on said mobile devices, an apparatus for position tracking and communication comprising:
  - (a) configuring means to place said probes at key locations in said locale with non-overlapping coverage areas;
  - (b) modeling means to model said locale with site specific information using a network of probabilities;
  - (c) installing means to deploy said mobile units for position tracking and communication;
  - (d) installing means to encod each mobile device with an identifier;
  - (e) probing means to send out beacons by said probes periodically;
  - (f) responding means by said mobile units upon receiving said beacon from said probes;
  - (g) collecting means to gather the whereabouts of said mobile units to feed to the central data collection device;

- (h) determining means to calculate the most likely location of said mobile;
- (i) messaging means to notify said mobile with messages; and
- (j) updating means to calculate possible change to said site specific information.

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